

REMARKS/ARGUMENTS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 1-11 are pending in this application. Claim 5 is amended by the present amendment. Support for the new and amended claims can be found in the original specification, claims and drawings.¹ No new matter is presented.

In the Office Action, Claim 5 was objected to because of a minor informality; Claims 1-2, 5 and 10-11 were rejected under 35 U.S.C. §103(a) as unpatentable over Yoshihara et al. (U.S. Pat. 5,172,233, herein Yoshihara) in view of Enomoto et al. (U.S. Pat. 4,996,545, herein Enomoto); Claims 3-4 were rejected under 35 U.S.C. §103(a) as unpatentable over Yoshihara in view of Enomoto and Kawakami et al. (U.S. Pat. 4,780,739, herein Kawakami); Claims 6-8 were rejected under 35 U.S.C. §103(a) as unpatentable over Yoshihara in view of Enomoto and Namerikawa et al. (U.S. Pat. 6,089,090, herein Namerikawa); and Claim 9 was rejected under 35 U.S.C. §103(a) as unpatentable over Yoshihara in view of Enomoto and Hasegawa (U.S. Pat. 5,900,927).

Regarding the objection to Claim 5, this claim is amended to recite “1/30 seconds” instead of “1/25 seconds” as recommended in the Office Action. Accordingly, Applicants respectfully request that the objection to Claim 5 be withdrawn.

The Office Action rejected Claims 1-2, 5 and 10-11 under 35 U.S.C. §103(a) as unpatentable over Yoshihara in view of Enomoto. Applicants respectfully traverse this rejection, as independent Claims 1 and 10 recite novel features clearly not taught or rendered obvious by the applied references.

Independent Claim 1 is directed to an apparatus for correcting a deviation of an imaging sensor of a digital camera in which an image of an object or a scene is formed on an

¹ E.g., specification, p. 17.

image plane of the imaging sensor so that the imaging sensor outputs an image signal, comprising:

a rotation detecting unit which detects a quantity of rotation of the digital camera causing a deviation of the imaging sensor from a reference position to occur, the rotation detecting unit including an acceleration sensor outputting a signal indicative of an acceleration of the digital camera and a magnetic sensor ***outputting a signal indicative of a magnetic field of the digital camera.***

Independent Claim 10, while directed to an alternative embodiment, recites similar features. Accordingly, the remarks and arguments presented below are applicable to each of independent Claims 1 and 10.

As described in an exemplary embodiment at p. 12, l. 23-p. 13, l. 5; p. 18, l. 11-p. 22, l. 6; and Fig. 3 of the specification, the rotation detecting unit includes each of an acceleration sensor and a magnetic sensor. The magnetic sensor outputs signals indicative of the magnetic field of the digital camera along a three-dimensional axis in the world coordinate system. For example, the magnetic sensor is configured to detect the magnetic field of the earth around the camera (e.g. by detecting the magnetic north pole, etc.), and generates an output indicative of the earth's magnetic field at the digital camera. Thus, the magnetic sensor senses a magnetic field ***of the digital camera*** and not a magnetic field generated by a sensor located in the camera.

In rejecting Claims 1 and 10, the Office Action asserts that Yoshihara discloses all the features recited in independent Claims 1 and 10 with the exception of the rotation detecting unit including an acceleration sensor and a magnetic sensor. In an attempt to remedy this deficiency, the Office Action relies on Enomoto and asserts that it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the cited references to arrive at Applicants' claims. Applicants respectfully traverse this assertion, as Enomoto fails to teach or suggest the claimed features for which it is asserted as a secondary reference under 35 U.S.C. §103.

Enomoto describes an apparatus for correcting a blurred image using a blurred image correcting lens that is supported to move in a direction substantially perpendicular to an optical axis of the photographing lens.² Enomoto further describes that the apparatus includes a driver for driving the correcting lens and an angular acceleration sensor which detects the angular acceleration applied to the camera to send a drive signal to the driver, and cancel an undesirable movement of the optical axis of the photographing lens.³

Thus, Enomoto does appear to describe that his apparatus includes an acceleration sensor, which supplies a signal to a driver, but fails to teach or suggest that the apparatus includes a “magnetic sensor outputting a signal *indicative of a magnetic field of the digital camera*,” as recited in independent Claim 1.

More particularly, Fig. 1 and col. 6, ll. 9-47 of Enomoto describes the configuration of the acceleration sensor 1. The sensor includes an elongated sensor arm 3 supported by a rotational shaft 4 at a balanced position in the center thereof in the longitudinal direction. On opposite ends of the sensor arm 3 are permanent magnets 5 and 6. The casing 2 has at its one end a magnetic sensor 7, such as Hall effect device, which is positioned opposite the permanent magnet 5, and at the other end thereof a coil 8 which is positioned opposite the permanent magnet 6. The permanent magnet 6 and the coil 8 are placed so that the magnetic flux of the permanent magnet 6 intersects the winding of the coil 8. Thus, when electric current is supplied to the coil 8, a rotational force on the sensor arm 3 is produced. The magnetic sensor 7 outputs no signal when the permanent magnet 5 is located opposite the center of the front surface of the magnetic sensor 7. When the sensor arm 3 rotates, the permanent magnet 5 is moved, so that the output corresponding to the direction of the movement and the displacement of the permanent magnet 7 is issued from the magnetic sensor 7.

² Enomoto, Abstract.

³ Id.

Thus, the acceleration sensor of Enomoto is a Hall effect, or Magnetic Resistance (MR) device that detects the movement of a sensor arm 3 based on its position relative to the coil 8 and the magnetic sensor 7. Accordingly, the “magnetic field” that is measured in Enomoto is the magnetic field of the sensor arm 3 relative to the coil 8 and the magnetic sensor 7, and is not indicative of a magnetic field *of the digital camera*, as claimed.

As discussed above, in an exemplary embodiment, the claimed magnetic sensor outputs signals indicative of the magnetic fields of the digital camera along a three-dimensional axis of the world coordinate system. Thus, the magnetic sensor senses a magnetic field *of the digital camera* and not a magnetic field generated by a sensor located in the camera, as is the case in Enomoto. .

Therefore, Yoshihara and Enomoto, neither alone, nor in combination, teach or suggest an apparatus for correcting a deviation of an imaging sensor including “a magnetic sensor *outputting a signal indicative of a magnetic field of the digital camera*,” as recited in independent Claim 1.

Accordingly, Applicants respectfully request that the rejection of Claims 1 (and the claims that depend therefrom) under 35 U.S.C. §103 be withdrawn. For substantially similar reasons, it is also submitted that Claim 10 (and Claim 11, which depends therefrom) patentably defines over Yoshihara and Enomoto.

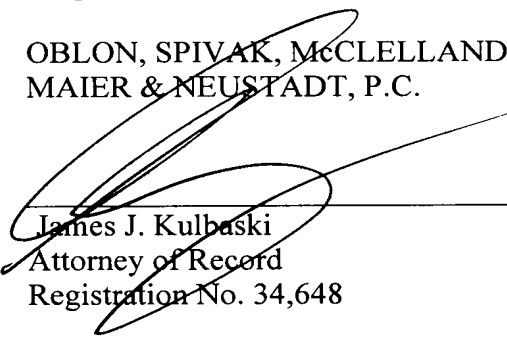
With regard to the rejection of Claims 3-4, 6-8 and 9 under 35 U.S.C. §103 as unpatentable over Yoshihara in view of Enomoto, Kawakami, Namerikawa and/or Hasegawa, Applicants note that each of Claims 3-4, 6-8 and 9 depend from independent Claim 1 and are believed to be patentable for at least the reasons discussed above. It is also submitted that none of Kawakami, Namerikawa and/or Hasegawa cure the above noted deficiencies of Yoshihara and Enomoto.

Accordingly, Applicants respectfully request that the rejection of Claims 3-4, 6-8 and 9 under 35 U.S.C. §103 be withdrawn.

Consequently, in view of the present amendment and in light of the foregoing comments, it is respectfully submitted that the invention defined by Claims 1-11 patentably define over the applied references. The present application is therefore believed to be in condition for formal allowance and an early and favorable reconsideration of the application is therefore requested.

Respectfully submitted,

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